Click, Zoom, Buzz: Adding STEAM to Everyday Activities
Teacher Time

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Dawn Williams: Welcome to Teacher Time. It's a brand new season. I'm Dawn Williams.

Kristin Ainslie: I'm Kristin Ainslie.

Dawn: And we are your hosts for the show. We both work here at the National Center for Quality Teaching and Learning as curriculum specialists, and we've both been classroom teachers.

Kristin: That's right. We will be here with you for Teacher Time today for about an hour. We are live streaming, which is always exciting. You never know what's going to happen. If you're having any trouble, though, there is a troubleshooting link that you can click on. It's right below the screen.

Dawn: And we also wanted to point the chat box out to you. We're going to be using that during the show today, and we love it when you take advantage of that to share your ideas and thoughts, because we get to learn from you, and so does everyone else who's watching. So please go ahead and use that. And you can also hit us up at Twitter at #NCQTL.

Kristin: All right, so we really want to know who's here today. We always want to know how many people are watching and what you're thinking about the show. So please sign in so that we can keep track of your attendance. We also really welcome you to join our Teacher Time community. You can receive email communications and announcements of upcoming Teacher Times and follow-up documents. So join our community by clicking that if you'd like.

Dawn: And we also will have an evaluation that's opened up later in the show. Please go ahead and complete that for us. It really helps us get more information about how to make the show better and do things that fit your needs. But you can also receive a certificate for attending the show today. So when you do that, just to get that, complete the evaluation, and at the end you can put your name and your email address as you want it to appear on the certificate, and you should receive that in the next week.

Kristin: Okay, so our agenda for today is we are going to introduce our topic for the whole year, the whole season, which is really exciting for us. We are going to be talking about STEAM, which is science, technology, engineering, art, and math. And so Dawn and I will give an overview of STEAM, kind of what we're going to be talking about this year. And then we're going to have Gail Joseph come on, and we're going to interview her, she's going to give us some information about why STEAM matters so much in early childhood education programs.

Dawn: That's right. And then after that, for our Try It Out! section, we'll have one of our current curriculum specialists on staff at NCQTL, who also was a Head Start and Early Head Start teacher, come on and talk to us about STEAM and how she did that in her classroom.

Kristin: And we're going to be giving you lots of resources throughout the whole year. Today we're going to share a few resources with you that we have at NCQTL for you to use, and then Gail Joseph will also come back with us and do a Resiliency and Wellness segment, which is one of

our favorite parts of it, really taking care of teachers that way. And then we'll close our segment and talk about next month.

Dawn: Okay. So, let's get into the presentation. So over the course of the year, there are two primary things we want to address on Teacher Time, STEAM and improving instructional interactions.

Kristin: Right, so thinking about improving the instructional practice in your everyday teacher-to-child interactions. And there's just so many ways that we can do this.

Dawn: There are, and especially when it comes to CLASS, we'll address the instructional supports for overall instructional improvement, such as fostering children's thinking skills, helping children expand their conversations, how to scaffold children's learning, and how teachers can give helpful, supportive feedback that supports children's learning as well.

Kristin: Right. So we'll also address content-specific teaching practices that have an evidence base for teaching all of the STEAM topics, right, to young children.

Dawn: All right, so we -- we're doing that all year long. And today we're going to start off by introducing you to STEAM. So, science, technology, engineering, art and math. We're just going to briefly discuss each of those things quickly and relate it to the Head Start Child Development and Early Learning Framework. There are lots of things you're already doing in this area, and so we just want to highlight that and show how you're doing some of those things. But also, one thing that's really great about STEAM, it's an area that's very easy to integrate in lots of other things that you're doing. So we'll discuss that a little bit, too.

Kristin: So, science. We'll start off with the S here. So we all sort of get maybe an idea of what we mean in science. And this year we're going to focus really on inquiry, on the process for helping children understand the world around them: understanding objects, phenomena, events. We want children to ask lots and lots of questions. We want to help children to investigate, to conduct observations, experiment, all of those kinds of things.

Dawn: And so there's lots of different science activities that happen in classrooms, there are things you're doing. And we always like the classics, such as why does something sink or why does something float, or what happens when ice melts? But what we're going to do a little bit different with having more of a STEAM focus is that there's an emphasis on the inquiry and critical thinking piece that you were talking about. And so then we wanted to show you this poster we have about the scientific method.

Kristin: Yeah, so this is a really great resource that we will include, I think, in the follow-up that we give you. The ECE specialists were given this as well, so you may ask them. But it's just a really great way to sort of remind ourselves how to support children in the whole scientific method. Helping children to ask questions, helping children to observe and to predict and to make experiments, discuss. Things like, wow, what do you see here, or what sound did that make when that dropped, all of those things. It's just a really nice sort of handout to use as one of our resources.

Dawn: Right, that could be handy for you when you're doing science experiments or just to post somewhere in your classroom. It'd be great to hand out to parents. If they're volunteering in your classroom, this could be something that could prompt them and help them ask some more

questions. Okay, so technology in the preschool classroom. So what do we mean by technology? What are we talking about here? And if we want to be real conceptual about it, it's any type of tool that enables you to do something is a form of technology. So, scissors.

Kristin: Right, technology.

Dawn: A pen could be a form of technology. But when we're talking about technology in STEAM, we also want to talk about technological fluency and exposure to technological tools. So kids see iPads, they see cell phones and smart phones and computers. So given that we live in a highly technological age, it's important in a preschool classroom to expose them to some of those things but also help them to develop technological fluency. So what are some of those terms? What is a mouse? What does it mean to swipe? What's an app? These are words that they're going to hear, so just exposing them and helping them to learn some new novel words, but technologically.

Kristin: Absolutely. So how it relates again to the framework, you can think of using technology in terms of children's physical development, fine motor development, approaches to learning -- taking initiative, curiosity, perspective, persistence. And again, one area that's so key, I think, into the technology piece is helping support social emotional development. Because self-regulation can come into play when we're working with new instruments and new tools, right? So even if it's scissors, even if it's drawing, if it's learning how to work a video or swipe or minimize, all of those are -- really play off social emotional development.

Dawn: Yeah, I mean, technology can be frustrating, so it's a new opportunity to engage in ways to help promote some social emotional development and figure out how to do some problem solving there.

Kristin: That's right, and some of these things, when teachers bring them into the classroom, can be so new and interesting, right? So working on sharing -- how do we use this tool in our classroom? One other thing that I think is really great is to actually -- of course we're using the tools for children, the tools that they might see every day, but also using video in science, right? So maybe showing a -- maybe you're doing a gardening unit and showing a time-lapse video of a seed growing or a banana rotting. So all of that is just at our fingertips these days. Thinking -- you had mentioned earlier about using assistive technology devices with children with special needs and communication delays. So all of that technology in the classroom is what we're talking about.

Dawn: Mm-hmm. Okay, so then that E, what is engineering in the preschool classroom? And there's lots of different types of engineering: there's civil, there's computer, mechanical, or chemical. But when we really think about what engineering is, at its foundation it's logic, it's that there's some type of input or action that a child takes that leads to a certain type of output. And it's also getting familiar with that process to create something like that. So let's think about building with Lego's or building with something in the classroom. There's a plan that a child might have in mind for what they're going to do, and so if they place a rectangular block next to a block that's an oval block, what's going to happen? What might be that output or reaction that happens when they place a block in a certain spot? And it's that thinking process that is getting into some of the foundations of what engineering is.

Kristin: That's great, and again, we can relate it to our early learning framework. So science, scientific skills and method, logic and reasoning, problem solving. So all of this again is integrated with what we're doing already. But just to be really, really intentional about -- about placement of materials and what materials we're going to use to help children to facilitate that problem solving.

Dawn: Okay, so the A for art. Art is something that integrates easily in so many of these other topics. Like you can do art and science together, you can do art and math together, you can do art and technology together. And so there's so many different types of creativity that comes as a result of that. Children need to be creative when they're thinking about being engineers and they're thinking about some design engineering process. Art allows the opportunity to do some of that.

Kristin: That's so true, that's so true. I'm so glad that we're talking about STEAM instead of just STEM. Because the art, the design, the creativity of all of these areas is what I think really just brings it together in a preschool way, right? I mean this is preschool, this is fun, this is creative.

Dawn: And we think about the experimentation, right? There's always an opportunity to experiment when you're drawing. Or when you're learning a song and you decide to change the words to a song, like you're still experimenting, you're figuring out a different way to do things. And children are such natural born, curious little beings, that experimentation really is fostered and facilitated when you're focusing on art in those domains that we want children to learn there. So it's a great time to take a chance, and you can do that in all these different areas.

Kristin: That's right. And so, okay, so the M, the math. So we all kind of know what we think about when we think of math in the early childhood classroom. So it's numbers, of course, it's relationships, geometry, but it's also what we call mathematizing everything that we do and seeing the math in everything. So not just simply seeing markers on the table, for instance, but seeing five markers on the table. Or not just seeing a set of plates and napkins at lunchtime, but seeing that six napkins have matched with six plates. So using math talk, using all of that, all of those great math vocabulary words and finding ways to fit that into everything that we can do.

Dawn: Right, so that was a brief overview of what STEAM is. We are going to be talking about these concepts over the course of the year. We'll be hitting each of these concepts, like mathematizing, much, much more. So stay tuned for the rest of the year. We do have a poll for you about -- we want to take a quick break with a poll and we want to know, which area of STEAM do you feel the most comfortable with? So when that poll comes up, we want you to just click on the button next to the poll. Don't put it in chat, but use the poll to answer your question. And when we come back, Gail will be with us.

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Kristin: All right, welcome back, Teacher Time teachers. We are back now with Gail Joseph. Hi, Gail.

Gail Joseph: Hi, nice to be here.

Kristin: We're so excited you're here to talk about this -- you know, our first webinar talking about STEAM. So let's get right to it. Why does STEAM matter so much in early childhood education?

Gail: That's a great question to kick us off. And I want to just take us back just even broader, right? So why do we focus on STEAM or care about STEAM at all, regardless of early childhood? And really what we know is that knowledge and skills in STEAM, in all of these areas that you've just talked about, are going to be really essential for jobs in the 21st century in this global economy, right? So we all know that and we're hearing that. We also know that the United States lags far behind other

industrialized countries in terms of those science and math skills as we look at upper elementary school kids and into high school and college. And that makes me think that I think we often think about math and science and technology and engineering and even art as we think about kind of older children and we're thinking like, oh, well, that's where the gap happens, right? But we actually are realizing more and more now that this gap is really happening in early childhood. And so one of the things is that we kind of have a knowledge gap on our own end, where we actually now know -- that we didn't know before -- that young children are really capable of doing pretty sophisticated and substantial inquiry into math and science topics. And they can do that at really young ages. And so I think first we have this gap in that we don't really think about young children as being able to do such sophisticated math and science, but they actually can. So that's another reason why we think about, gosh, we need to focus more on math and science and STEAM in general for young children.

But let's talk about some other things that we know as to why we should be focusing on STEAM in early learning. So there's some great research that's coming out. And one thing that we now know is that early math knowledge, so that math knowledge that's happening in our preschool classrooms, predicts later success in math in school. So young children that are leaving our Head Start preschool classrooms feeling competent and confident in STEAM but in math in particular are feeling and performing better at math in early elementary grades. But hold on there, not only is it early elementary, but actually this preschool math knowledge is predicting math achievement all the way into high school.

Dawn: Wow.

Gail: Right? So this is a long-lasting kind of impact we can make when we're focusing more on STEAM and math in early learning. And then if you think that's exciting and interesting --

Kristin: Yes, I do.

Gail: we've got one more doozy for you, and that is that this interesting finding that not only does preschool math knowledge predict later math success and later math achievement, preschool math knowledge actually predicts later reading achievement, and get this, even better than early reading skills. So if we didn't think that we needed to focus on early math knowledge before, now I think we've got some data that we just can't ignore all about the importance of this.

Dawn: So then how are we doing in math in preschool classrooms then?

Gail: Okay, so...

Dawn: If it's that important.

Gail: Right, it is that important. So how are we doing? Well, so we have some great data from some really smart researchers to inform that question, too. So this is some data that comes from Prentice Starkey, who's a great math thinker and math researcher. And one of the things that we know is that this -- a problem really starts in preschool in terms of a gap between those who are coming from lower resource backgrounds compared with their middle-income peers. So we see this disproportionate percentage of children of color and children from low-income backgrounds that are not learning math skills as well as their middle-income peers. And so you'll see that there is this great, pretty significant gap there, and it's very obvious when you see that, just like the blue to the red gap

there. And these are pretty perhaps basic skills when you're thinking about early math. So just object counting, look at the gap there. Look at that gap when the next one is just what is the next number? So if I say, "One, two, three, what's the next number?" Looking at comparisons of numbers in groups of objects. So you'll see that this gap widens. Here are some other key skills. Just plus or minus with objects. So I take something away or add something, now how many do I have? To simple two-set addition. Shape names.

And so what I think about when I look at this gap, I just think it reminds me of why we're here, of the work that we do in Head Start. And the charge to Head Start teachers is to close that gap, right, to not allow this gap to exist with our preschool learners. Because we know that they are capable of learning really sophisticated math skills. And so we need to really kind of do our job there in closing that gap. And it also makes me think about -- actually, when I was reviewing this slide this morning getting prepared today, I was looking at the shape names one, for example. And I was thinking if you kind of follow even the red line across, it says 70% correct. So that, for example, might be that they gave children 10 shapes to identify and that they could only identify 7 of those 10 shapes. And then I'm just going to admit something here, that I started to think, like, can I name 10 shape names? Right? I can go circle, oval... So I don't want to display this, but I am thinking, you know, if I was going back in the classroom tomorrow, one thing I would do is start learning more math myself. So I think part of this is really recognizing that, gosh, math's really important, STEAM's really important, where are my skills at, and then acknowledging that maybe I need to learn some more things as well. So I certainly am going to try and make sure I have 10 shape names. Because I'm not going to be able to close that gap unless I have that skill and that knowledge myself.

Kristin: Right, so can the gap be closed, Gail? I mean, does that happen?

Gail: When they leave preschool, right?

Kristin: Yeah, I mean that's so early.

Gail: I think we're all thinking, like, hey, we're going to take care of their social emotional needs, which of course is very important. And so, gosh, they're going to get this math and science and all this STEAM when they head into --

Kristin: Middle school, elementary.

Gail: Yeah, it's going to close. But unfortunately, that's just not what the data is telling us. And so this is -- I'm going to show another slide here. This is Eric Hanushek out of Stanford's research, and I think this is a really just kind of sophisticated look at what happens here. And here he's looking at the black-white difference in terms of children's -- the difference in their math skills, their math achievement tests, over time. And so you can look at it starting in kindergarten. By the end of kindergarten, there's a gap there. But if you play that out all the way, now it's fifth grade, it's more than quadrupled, the difference, the gap there. So it is not something that's closing as children are going into their elementary schools. And then I just think about, let's play this out further, right? So here's fifth grade, look at that difference. We have no reason to think it's going to close once they enter into middle school or high school. So that means these children are most likely going to be put in lower math classes, lower level math classes. It's going to impact their SAT scores. That's going to close the number of colleges they're going to have an opportunity to attend. And in college it's going to close and limit the number of things they can get into or major in. Which played out further

means we're really kind of closing their opportunities to enter into certain careers, right? So the careers you were talking about, the technological careers that are there and the learning that we have to have in 21st century. So really we think about an achievement gap, but we need to think about the opportunity gap that we're closing by not doing some good due diligence around that STEAM focus in early learning, okay? So we want to think about the opportunities we can create for young children.

Dawn: Yeah, that is disheartening, that that achievement gap starts early, it turns into an opportunity gap, and it stays. It makes me think of the work of Bob Moses, who really talks about math as being a civil right. He was one of our great civil rights leaders, and he started the Algebra Project, which really tries to focus on helping children of color and older students of color in high school and middle school close that gap, like increase their math skills. And it's a civil right. I'm on board.

Gail: If you don't know who Bob Moses is, everyone should like -- after Teacher Time, do some Googling and read some of his work, because you're right, math literacy as a civil right is something we should be thinking about, absolutely.

Kristin: So with all of this, what do we know about math teaching and learning right now in preschool? What's happening?

Gail: Okay, so probably as people might expect, the quality really varies, right? So we can go into some classrooms and see some incredible math learning. In fact, I think you're going to have a teacher on, a former teacher, later who has done some great math learning, right? So there are some real strengths and then there are some places to improve. I think about, gosh, if you were looking in my classroom and we go back and look at those videotapes of me teaching, do we see as much math going on? Probably not, right? So quality is varied, variable out there. But there are some big surprises still. So I still think I was doing some math, right, and some STEAM stuff, right? But there was a research project by Tudge and Doucet in 2004, and they actually looked into classrooms and they found -- into 3-year-old classrooms, 4-year-old classrooms -- they found that 60% of 3-year-olds in this wide sample of classrooms they were looking in got no mathematical experience of any kind. And they looked across 180 observations. So they gave them plenty of opportunity to demonstrate that. No math-focused kind of interaction was happening. And so it also makes me think about just some caution to give us all, teachers. We teach very comprehensive curriculum. We often are using a research-based comprehensive curriculum in our early learning programs and our Head Start programs. But there is some caution there when we're thinking about these comprehensive curriculums, because there was actually a great study done by Dale Farran at Vanderbilt and her colleagues where they were looking in classrooms that were using a comprehensive curriculum that even had a math focus in that comprehensive curriculum. And so they were looking at -- and they were looking six-hour days, right, 360-minute days. And so how much of that day, of a six-hour day, how much would you guess is being focused on math?

Dawn: I mean, at least an hour, like an hour and a half?

Gail: Yeah, right. So the answer actually is 58... what do you think?

Dawn: Minutes?

Kristin: Minutes?

Gail: Right, so you're thinking it's close to an hour?

Dawn: Yeah.

Gail: It's 58 seconds is what they found. Fifty-eight seconds was the observation they had of when there was actually a focused math interaction.

Kristin: 58 seconds.

Gail: 58 seconds. Okay, so I was shocked, too, and so I did a little math here, right? We're talking about STEAM, so I did a little math. So I looked at kind of a calendar and marked out the days that I think are typical kind of Head Start preschool days of attendance. Of course, some programs are year-round, that's great, all of that, but let's just go with kind of the typical here in terms of when children are in attendance, accounting for breaks, all of that stuff. And this doesn't give anyone a sick day or a vacation day. This is like when they're there. And let's then say, gosh, if they only got 58 seconds a day of math, over a year, potentially they'd only get 2 hours and 4 minutes. I actually even rounded up a little bit to get to that 4 minutes. So 2 hours and 4 minutes of math per year. So we just have to think, is that going to be enough to close -- are kids going to learn 10 shape names in that? So we want to keep this in mind, keep this as kind of like our challenge. We can do better than this, right?

Dawn: You're in so many classrooms and work with so many teachers. What are teachers' beliefs about math instruction?

Gail: So I think that one is just what we actually kind of talked about, and that is this belief that just doing a comprehensive kind of general curriculum, that children will be learning math, that that's sufficient enough for children to learn the math skills they need in preschool. And so I think we need to challenge that.

Kristin: When I was teaching, I had my curriculum, and I wasn't thinking about adding more in.

Gail: And I think both you and I had a lot of math counters and things. I remember us having all these different math counters and stuff, right? But did I engage in an interaction and use some math language in that around those counters and things? So I think that it's not just that the materials are there and that the children will just magically start naming shapes and getting this plus and minus and all of that kind of stuff. So that's -- and that's actually what research is finding, too, is that teachers believe that a general kind of curriculum is sufficient enough math experience, and so we know that we need to challenge that belief. It's the one we had, but we would now go back and challenge ourselves in thinking about that. And we also know that, again, remember, I was saying, gosh, do I know 10 shapes? So the other thing is that teachers, early childhood teachers, feel less confident in math. And in fact, I think maybe our poll even came out that way, right? So feeling a little less confident in math and math standards. And now we're hearing about Common Core, all of those things. So they're feeling less confident in that and competent in that. And so we need to really think about some ongoing PD to support that work, right?

Kristin: So what can we do? What can we do right now to really support the teachers who are watching, to really get everybody ready? What can we do today?

Gail: Right. Absolutely. So I think that -- and these are just some ideas that when I've been looking and scouring the literature, what are some of those suggestions that researchers in this area are making? And so here are some of the ones that they would put down, which are probably going to resonate well. So one is just that we need to focus more on STEAM. So clearly now we see the data, we understand what will happen. The unintentional outcomes of us ignoring that work in early childhood means that we can really be complicit in that gap that is so pernicious and persistent in there. So we want to focus on STEAM. We want to think about how we mathematize every day? You had some great examples in the opening, and I know you're going to hear from a teacher that has some great examples.

The next thing is just improving program quality in general. And so one of the ways we measure that in Head Start is by using the CLASS Pre-K observation tool, and I'm sure that our watchers are very familiar with what that tool is. And, you know, what's great about that is that those instructional interactions that we look at in instructional support, that concept development, quality feedback, and the language modeling, those are the very things that we want to do more of and that will impact our STEAM learning, right? So when you think about that kind of concept development, fostering thinking skills, engaging in the scientific method, allowing children to experiment, asking them why and how, those are the very things that we want to do. So improving all of our instructional support strategies and interactions and overall program quality is going to also help support STEAM.

Now the next one I'm sure that not too many of our listeners probably can do too much about, but I want to just say this, is that we really also need to improve the teacher preparation. So, again, a reflection and an honest kind of acknowledgement here that I didn't get any courses in STEAM when I was learning to be an early childhood teacher, right? So in my degree, no courses in STEAM. And that might still be the case, right? So we want to improve what's happening. An upstream solution is to improve what's happening in our teacher prep programs, in our bachelor degree programs in early childhood, and include more STEAM-focused coursework and learning opportunities. And then improving the ongoing professional development for our current teachers. And so that's why, yay, STEAM on Teacher Time, right? A whole year. I just think that I want to listen to what you're going to say all year long, I want to kind of talk to other teachers about it and practice that. So I'm hoping that other folks are doing that, too, creating these communities of practice off of that.

And then lastly, we did see that it takes a full effort, it takes a whole continuum of challenging learning. And so this is just a reminder that we're going to work hard in early childhood to do our share of that work in terms of building those STEAM skills in early childhood, but we need to have a continuous and well designed and challenging STEAM learning P-12, really, all the way through, P-16 even, why not, why not stop then at high school? So full steam ahead, right?

Kristin: Yeah, love it. Good.

[Dawn laughs]

Kristin: Thank you, Gail, for being with us. That was just -- that gave everybody -- I mean, I'm inspired. I'm so excited for our season. And so we're just going to take a very short break. We're going to come back with our teacher and our coworker here at NCQTL, our former teacher. And so we have a chat question for you, though. This far in this webinar, what has been your biggest aha? I know I have a few already. Gail surprised me with some things. And so we want to know what yours is, what's your

biggest aha? If you could just put that into chat, we will take a very short break and be back with you in a moment.

[music plays]

Dawn: All right, we are back for our Try it Out! segment. And we are here with our current coworker as a curriculum specialist but also a former Head Start and Early Head Start teacher, Terri Wardrop.

Kristin: Hi, Terri.

Terri Wardrop: Hi. Yes, I spent four years in Early Head Start and four years in Head Start, and also got a little stint as a disabilities coordinator and as a child care director.

Dawn: True Head Start fashion. Multiple jobs, many talents.

Kristin: Lots and lots of areas there in Head Start.

Terri: Yes, and I loved Head Start, so.

Kristin: That's great, good. Well, we do too. What -- how did you incorporate STEAM into your classroom?

Terri: Well, I have a little confession that I probably fit into the data that Gail talked about in terms of being a generalist and thinking that if I put something out in the classroom, that that was enough. And probably, you know, might have spent maybe a minute, maybe two on math on any given day. But fortunately, one year I had a class and a supervisor that helped me to change. And as early childhood educators, it can often feel like we're being asked to do more and more and more. But what happened with this class was that actually they helped me to see that it was not about doing more, it was about changing what I was doing. Because about half my class excelled in so many areas. They were just dramatic. And they were always asking me questions that I didn't have the answers for: How does this work? Why does this happen? What is the word for...? And so when I began to change my approach and looked at integrating science into math and math into art and art into engineering, not only did the half of the class who were challenging me to be a better teacher benefit, but all of the children benefit. All of them rose up and were amazing. They began to think deeply about things, and all of them began to ask questions and look at the world and be more deeply curious.

Dawn: So it sounds like you're really fostering and facilitating an environment of curiosity and inquisitiveness. So it makes me think about then what were some of the activities you did that were more STEAM focused?

Terri: Well, I did not change any of the activities I did. What I did was looked at how to expand those activities, like Sink and Float. Not only did this object sink or float, but what kind of splash did it make, and how far did the splash come up? I began to really expand upon those activities that I was already doing. You know, the whole ice melting, getting out paintbrushes and doing art on the asphalt with the water that was melting. And putting one ice block in the shade and one in the sun and seeing --

Dawn: What's going to happen?

Terri: So it was really about expanding on the activities that I already did and begin to think about how can I bring math into this when it's not normally a math activity? And how can I -- and again, it doesn't have to be elaborate; it can be a question.

Dawn: Right, right.

Kristin: So how did you find -- I mean, not everyone's comfortable with all of those areas. I definitely was not in my classroom. I was all about art and social. So how did you find your strength? How did you find that -- the confidence in those areas?

Terri: Well, there were two strengths that I feel like I had in the classroom, and one was my willingness to look at what was happening honestly in the classroom and see that mismatch between the children's needs and what I was doing in the classroom, and then seeking out the resources that would help me really address the needs of the children in my class. And then the other strength I had was in language and literacy and creating a bridge with my strength and looking at the definition of prediction. You know, that's a very scientific word, but, you know, again, it's a word, and I have strength in language. And so really pulling in definitions and then setting up these activities so that we had done little precursor activities so that when we got to making predictions about certain things, they were really comfortable with that word. We have played with it, we had done fun things with it, and so when we got to the science of it, they were comfortable with the language of it.

Kristin: That's really great.

Dawn: So speaking of being reflective and trying to improve your practice, we actually have a video of Terri in the classroom doing some of the things that she was talking about. So we really appreciate you doing that. Not everybody likes to do that, but it's a great practice so you can work on improving your practice by watching what you do in the classroom.

Kristin: Yeah, it's really great.

Dawn: So go ahead and take a look at this video.

Terri: Yeah. Is it blowing up or is it becoming foamy? Those were your predictions.

Child: I think it's turning color.

Terri: Yeah, it's turning colors. That was Gavin's prediction. All right, now let's let King have a turn stirring. I'm going to scoot it over. Careful, woo! All right. And I'm going to make sure you get a turn, too, Isla. All right, here we go, we're going to add some more. What happens as I add more? What's happening?

Child: It's getting red.

Terri: It's getting red. Is it turning kind of sticky? What does it feel like, I wonder? Ooh, it feels kind of gooey. Yeah.

Child: Yuck. But it's turning pink.

Terri: Yeah, it's turning pink. Keep stirring. Let's see what happens.

Kristin: All right, we're back from watching that video. That was a really great example, Terri. I'm so glad we got to show that. So, again, one of your strengths, right, that you brought into these areas, an example of integrating language and science together. So you spoke before about the language arts kind of being your strength. Is this kind of what you were talking about? We saw firsthand.

Terri: Yes, that is a good example, because it's -- you know, again, going back to the predictions that they had made earlier and talking about them. You know, reinforcing that word "prediction" and what they had done and really talking about that.

Kristin: That's great.

Dawn: So now that we've learned what STEAM is and we've heard from Gail about how important it is, and Terri shared with how she integrates some of this in her classroom, so now how do you start doing some of this? And, Terri, one of the things I really got from your interview with us is how self-reflective you were. And so one of the things that we wanted to do was have some questions for you to reflect on to try to start doing some of this in your classroom. Because it doesn't just happen. You're not going to do it without having some planning or preparation or thought put into it before. So, first, let's be reflective and think about it.

Kristin: Yeah, so these questions we have just up here, we're going to include in the follow-up. So these might be, Terri, some questions that teachers could really start with. So the resource piece. What resources do I have already? What do I need? What area in STEAM am I excited about learning about right now?

Dawn: What area in STEAM do I already feel confident in? And what's my plan for taking it to families? What's my plan for introducing it to children? So we just wanted to offer those out to you as things to start reflecting and thinking about how you might do some of this work, and it'll be there in the follow-up.

Terri: Yes, and the resources piece is really key, because we all know that as early childhood educators, we are maxed out sometimes. And really looking at those resources that are available to you, not only in your colleagues but in your families, the parents, the community volunteers. There's lots of resources out there for you.

Kristin: That's so true. And we're going to go over some of those. But we want to thank you so much for being with us today, and thanks for showing that video. And I think the teachers got a lot out of it, so that's great.

Terri: Great. Thank you.

Dawn: Thanks, Terri.

Kristin: Okay, so we have another short break. We want to involve the audience out there as much as we can. So we have a chat break this time. And so thinking about what Terri talked about, what Gail

talked about, what is your STEAM strength right now? What do you feel the most confident in in each of those areas? So go ahead and chat that in the chat box, and we will be back in just a moment.

[music plays]

Dawn: All right, welcome back, and we are here for our resource segment. Every Teacher Time show, we are going to share some resources that relate to our content that we covered and are also reflective of other things that other presenters might have shared. So we are going to share several resources for you right now that we're going to refer back to over the course of the year as we do our Teacher Time shows.

Kristin: That's right. So NCQTL here, we have some really great in-service suites that are very short. You can take pieces of them, you can watch an overview video of them. They are all available on the ECLKC. And one of them that we want to highlight today is called Fostering Children's Thinking Skills. It's a really great place to begin thinking about where do I begin in helping children with inquiry? And it describes ways that teachers can support children in using thinking strategies and gain deeper understanding and acquiring new knowledge. So I really hope you take a look at that one.

Dawn: And we want to show you the tips for teachers that's a part of the Fostering Children's Thinking Skills 15-minute in-service suite. Kristin mentioned that you can watch the five-minute overview video, and then you could use this tips for teachers and get yourself a little 15-minute in-service and start trying something new in your classroom. So this tips for teachers really gives you some strategies you can use to foster your children's thinking skills. So it'll have ways to promote like how you might start asking prediction questions or how you might introduce comparing and contrasting in your classroom. And it's just a two-page document, hopefully it's something quick and easy that can give you some concrete things to try in the classroom.

Kristin: So another really great suite that we have, 15-minute in-service suite, again, on the ECLKC, is Using the Scientific Method. And so we think about that, this is really what scientists use. I mean, it's -- but it's geared towards of course preschool teachers. How do we teach -- scientists are -- they inquire about things. So Using the Scientific Method, it's a great suite. I did -- we did talk about the scientific method handout that we have as well. So how do we help children walk through the process of being a scientist? And so this is a really great place to begin as well.

Dawn: And included in the follow-up document, we'll include a poster that you can put up in your classroom that can show you some of those as well.

Kristin: Yep.

Dawn: And then we also wanted to mention the Next Generation Science Standards. They just came out in this last year's revised standards for K-12, but we want to make sure our Head Start preschool audience knows about those, because it's what's going to help prepare -- that's what the children you have now are going to need to do once they hit kindergarten and beyond. So getting familiar with those. Click on that link that we're putting in chat and take a look so you can get a sense of what's there.

Kristin: Right. Where should children be going when they leave preschool?

Dawn: Yeah.

Kristin: Okay, so we are going to take another very short break with a poll. We always want to know how many of you are watching. How many of you are watching just alone? How many of you have Teacher Time watch parties? So we would like you to click in your answer for the poll of how many of you are watching. And when we come back from the poll, we are going to do a Resiliency and Wellness segment with Gail again. That's going to be really helpful for all of us.

Dawn: We all need it.

Kristin: Love it. And during the poll you'll hear some music, so we'll be back in just a moment.

[music plays]

Kristin: All right, hello. Welcome back, teachers, and everyone watching with us today. We are back with Gail Joseph again. Hi, Gail.

Gail: Hi, it's nice to be here again.

Kristin: We love it. And she is going to be doing a Resiliency and Wellness segment for us, and I'll just let you explain a little bit about that, Gail, and take it away.

Gail: Yes, so I thought -- we did this a bit last year, and we're going to continue with it this year. And I just thought I'd remind us as we start our new season, why is it that we're focusing on resiliency and wellness during Teacher Time? So one of the things we know from being former teachers and one of the things we just know about teaching and our teachers is that it can be the most rewarding profession, it absolutely is, and we find those joys every day and we know that we're doing a good job in closing that achievement gap and opportunity gap. It's incredibly rewarding work. But we also know from experience and from talking with teachers is that it can be some of the most stressful work. It can be just stressful by itself, and we also know that if you're dealing with outside stressors, stressors from home, stress from finances, stress from all kinds of things -- your car broke down, you missed the bus, those kinds of things, all of that can create a lot of stress and tension that comes to impact our work in the classroom, right? So I always say that the difference between when I had my most effective moments and when I had my ineffective moments was really how I was feeling myself and how I was approaching that situation. And so because we know that -- and not only do we know that just intuitively, and I'm sure our listeners know that, it's also now really being validated by research that the more we can feel positive, the more we have resiliency skills that help us survive and thrive, so surviving through stressful moments, surviving through trauma in our lives, but not only surviving but thriving, feeling happy, feeling excited about the work that we do and about the people that are around us. And so we like teachers to teach the whole child. We talk about that a lot. And so we want to support the whole teacher just as much. So that's why we focus on resiliency and wellness. So every time, we have a little tip, just a short little tip, about improving our resiliency and wellness, something to help us do that.

And so today's tip is what we're going to call the thought challengers. All right, so, and in fact, I've brought some to share with you. So these are our thought challengers. I think I've got Hulk, Wonder Woman, and I think this is Thor. All right. So our thought challengers, all right. So what do I mean by that? Well, so I don't know if this has ever happened to you, but you start thinking a little negatively,

right? So you're like, "I'm the worst teacher, I'm a bad mom, I'm a bad friend, I'm the worst at math." And so what happens is that these negative thoughts that creep in -- we're only human, it's going to creep into our minds there -- is that when they're left to fester without kind of checking them or challenging them, that they lead to some pretty negative feelings. I mean, me just saying those things, "I'm the worst teacher, I'm a bad mom," I just feel bad, right? So you can imagine too that the way I'm thinking is impacting the way I'm feeling, and the way I'm feeling is going to impact the way I act in those situations. How am I going to interact with a young child if I'm feeling like I'm the worst teacher ever? Or how am I going to interact with children in a classroom when I'm coming from a situation I'm feeling like a bad mom or a bad friend, right? So thoughts are just thoughts, right? And we need to challenge those negative thoughts, because when we can challenge those negative thoughts, we're going to impact the negative feelings, we're going to start feeling better and more positive, and our interactions are going to improve. And we're going to feel better, right? Who wants to feel that way all the time? No way, we need to challenge, challenge those thoughts, all right?

So how do we challenge those negative thoughts when they creep in? So these are just a few questions, and you can jot them down and have these questions. And maybe these questions are right next to the superhero on your desk or by your mirror or someplace that you might look often. Because these are the questions that are going to help you challenge that negative thinking, right? So I'm the worst teacher. Really? Is that really true? The worst teacher on the planet?

Kristin: Really?

Gail: Right. So that's what your thought challengers do. Is this really true? Am I going to let this thought control my life, right? I'm not so good at math. Is that going to control everything? No, I'm going to get better at it, right? I can improve. I learn some new things every day. So am I going to let this control the way I feel about myself, about others? And then this is a really great thought challenger question, which is, is this thought helping me, right? So let's say I had a bad interaction with my children at home and I'm feeling like I'm the worst mom on the planet, right? Well, is that helping me to become a better mom? Probably not. So what's something -- a thought that can be more helpful right now, okay? Another one is oftentimes negative feelings are coming from some worries and anxieties because of an interaction that happened, right? So I can think about being in a staff meeting, and I remember this clearly, the director praising another teacher's circle time: "Oh, I saw the best circle time." And I'm thinking, "Oh, so I'm the worst at circle time?" Why didn't she talk to me? What's wrong with mine? And to say, well, what other explanations could there be? Maybe that teacher was really working hard to improve her circle time and she was getting praised for that. And if I really need to have some support, I can ask for that. So what other explanations could there be? Have I missed something? Did my colleague, my coworker, my assistant teacher have a bad day, something's happening at home, and so the interaction with me is not really about me, but it's about something at home? And maybe I can be a support and help challenge some of the thinking that she's having. So have I missed something here? So anyway, so I just hope that people can just imagine when you have a negative thought, "Mm-mm, there's a thought challenger going to challenge that thought for you." Right on your shoulder. That's right where they should be.

Okay, here's a little exercise you can do when you're -- because one of the things we know is that feeling positive, feeling happy, having resiliency and wellness takes practice, right? So we have to practice it. Here's a little practice activity you can do on your own time. So you can think about a negative unhelpful thought that you've had recently. Not a fun thing to do, but think about one of those that you had. Imagine one of the ones that has come to you as we've been talking about

this. Okay? All right? And now think about how that made you feel when you were experiencing it or even when you're thinking about it right now. And now let's take it through some of those thought challenger questions, right? So what's some ways that you could challenge that thought? And now what's some more positive thinking and course of action you could take? So is this helping me? Probably not. So what could help me better? Oh, well, I could ask for support or I could tell them how I'm feeling, or I could say, "I'm pretty good at this, and yeah, I need to grow at that." And then think about how that makes you feel now that you're in that more positive course of action, okay? So the thought challengers, I hope we all use them well. And I also would just encourage you to be a thought challenger for a peer, a colleague, a partner, anybody, a child, when you hear those absolute negative statements, is that, you know, I'm going to challenge that, actually. I don't think that's really true. Is that really true? Okay, and that's it.

Kristin: That's really great.

Dawn: Thank you, Gail. Quick, simple, easy. You can just think through it and be in a better place.

Gail: That's right.

Kristin: Thank you so much.

Dawn: Thanks, Gail. All right, so we are going to be right back with some closing announcements and a moment of awe. All right, we're back with a few closing announcements, and we've kept our thought challengers here. They're going to be on our shoulders to keep staying positive. So please stay in touch with us. We want to highlight your great work. If you have any great lesson plan ideas or photos that represent what we were talking about in the classroom, if you tried something new around STEAM, we'd really love to see that and stay in communication. And we love that you're sharing things with each other in chat. That's another great place to learn. So we just want to keep all that conversation going. So please go ahead and send those things to us at ncqtl@uw.edu.

Kristin: All right, so Twitter, all of you people who are using Twitter out there, I need to get better at Twitter, but I know a lot of people use Twitter, and it's so exciting to hear sort of the buzz of what's going on. So #NCQTL is where we are. And you can join us now on the Twitter feed if you'd like.

Dawn: That's right. And if you haven't had a change to sign in, please go ahead and do that now. You can register your attendance here. That's how we'll know you're here. And then also you can opt in to join our Teacher Time community, where we can communicate with you afterwards. The evaluation is open now. Please go ahead and complete that. It helps us to help you and complete that whole feedback loop right there.

Kristin: That's right.

Dawn: You can also receive a certificate for attending today. To do that, complete the evaluation, and put your name and email address as you want it to appear on the certificate, and you should receive that in the next week or so. Also, we record all of our Teacher Time shows, and this one will be available next week as well. But all of the archived webinars are at teachertime.org.

Kristin: That's right. So we are going to say goodbye now. We will see you back next month on October 10th? I want to get the date right. October 10th, good, at the same time. We hope you come back. It's

going to be a really exciting season. So don't go away yet, because as promised, we have a very adorable clip to show you that will just make you smile.

Girl: He lived in a hole, then somebody find it, and then we pick it up, and then, "Oh, kill it," and then --

Girl: But they are really slobbery.

Girl: Yeah, they are really slobbery.

[music plays]